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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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09/992,060

11/21/2001

Robert W. Parish

7240 US

4859

30078

7590

12/19/2003

TEKTRONIX, INC.

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BEAVERTON, OR 97077-0001

EXAMINER

CHEN, PO WEI

ART UNIT

PAPER NUMBER

2676

DATE MAILED: 12/19/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

09/992,060

Applicant(s)

PARISH ET AL.

Examiner

Po-Wei (Dennis) Chen

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2676

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 22 September 2003.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-4 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-4 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. §§ 119 and 120**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All b) ☐ Some \* c) ☐ None of:  
1. ☐ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  
\* See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.  
a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_\_ 6) ☐ Other: \_\_\_\_\_

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### DETAILED ACTION

In response to an Amendment received on September 22, 2003. This action is final.

Claims 1-4 are pending in this application. Claims 1 and 4 are independent claims.

The present title of the invention is "Image Alias Rejection Using Shaped Statistical Filtering".

The Group Art Unit of the Examiner case is now 2676. Please use the proper Art Unit number to help us serve you better.

#### *Claim Rejections - 35 USC § 103*

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1 and 3 are rejected under 35 U.S.C. 103(a) as being unpatentable over Poduska, Jr. (US 5,777,599; refer to as Poduska herein) and further in view of Alappat et al. (US 5,440,676; refer to as Alappat herein) and Wells et al. (US 5,264,840; refer to as Wells herein).

3. Regarding claim 1, Poduska discloses a image generation device and method using dithering comprising:

An apparatus for image alias rejection of a high resolution (lines 26-39 of column 2);

Means for generating a dither signal (lines 7-20 of column 6 and lines 1-5 of column 7);

Means for summing the dither signal with a dimensional component value of each data point for the high resolution to produce filtered data point values (lines 1-4 of abstract, lines 61-67 of column 6 and lines 1-21 of column 7);

Means for subsampling the filtered data point values to produce a desired lower resolution for display (lines 1-11 of abstract).

Poduska does not disclose rasterized waveform. However, this is known in the art taught by Alappat. Alappat teaches a raster scan waveform display rasterizer for anti-alias pixel data (lines 14-17 of column 10). It would have been obvious to one of ordinary skill in the art to utilize the teaching of Alappat to provide the advantage of eliminating discontinuity, jaggedness or oscilation in the waveform display (lines 1-2 of column 2, Alappat). Also, both Poduska and Alappat are directed to provide smoothness to the image;

Poduska does not disclose shaped dither. However, this is known in the art taught by Wells. Wells teaches a method and apparatus for vector aligned dithering that "the dither matrix is rectangular in shape to correspond to the shape of the vector" (lines 4-6 of abstract). It would have been obvious to one of ordinary skill in the art to utilize the teaching of Wells to provide the function of making sure that the individual pixels which make up the vector are dithered with best elements (lines 50-56 of column 3). Also, both Poduska and Wells are directed to minimize the undesirable effects of the image.

4. Regarding claim 3, Poduska discloses a image generation device and method using dithering comprising:

Generating means comprises a look-up table containing data corresponding to the dither signal (lines 16-20 of column 6 and lines 1-5 of column 7 and Fig. 6).

Poduska does not disclose shaped dither. However, this is known in the art taught by Wells, as statements presented above, with respect to claim 1 above are incorporated herein.

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5. Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over Poduska, Jr. (US 5,777,599; refer to as Poduska herein), Alappat et al. (US 5,440,676; refer to as Alappat herein) and Wells et al. (US 5,264,840; refer to as Wells herein) as applied to claim 1 above and further in view of Cole (US 6,469,684; refer to as Cole herein).

6. Regarding claim 2, the combination of Poduska, Alappat and Wells discloses shaped dither signal, as statement presented above, with respect to claim 1 above are incorporated herein. It is noted that the combination of Poduska, Alappat and Wells does not disclose aplurality of linear feedback shift registers, each producing a random number output; and means for summing the random number outputs. However, this is known in the art taught by Cole. Cole disclose a cole sequence inversion circuitry that utilize multiple linear feedback shift registers to provide a pseudo-random signal (lines 49-67 of column 9 and lines 1-8 of column 10 and Fig. 7). It would have been obvious to one of ordinary skill in the art at the time of invention to utilize the teaching of Cole to reduce flicker of the display (lines 36-37 of column 2, Cole). Like Poduska, Alappat and Wells, Cole is directed to providing smoothness to the display.

7. Regarding claim 4, statements presented above, with respect to claim 1 are incorporated herein.

#### ***Response to Arguments***

8. Applicant's arguments filed September 22, 2003 have been fully considered but they are not persuasive.

The applicant argues: reference Poduska does not disclose image aliasing when a waveform is reduced in size. However, this is known in the art taught by Poduska (lines 26-39 of column 2; by utilizing dithering, image junction (edges) is being smooth out, thus correspond

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to rejecting aliasing) and further in view of Alappat (lines 14-17 of column 10; anti-aliasing rasterized waveform image). It would have been obvious to one of ordinary skill in the art to utilize the teaching of Alappat to provide the advantage of eliminating discontinuity, jaggedness or oscillation in the waveform display (lines 1-2 of column 2, Alappat).

The Applicant argues: reference Poduska does not disclose dithering x/y dimensional values. However, the claim recites summing the dither signal with a dimensional component value of each data point to produce filtered data point values. This is known in the art taught by Poduska (lines 1-4 of abstract, lines 61-67 of column 6 and lines 1-21 of column 7; each dither signal is being combined with dimensional component value (xy values ) to produce a new dithering signal. While claim recites filtered data point values, the term is broad enough to include the new dither values for certain location. Also see Fig. 6.

The Applicant argues: reference Poduska does not disclose the dither signal is a shaped dither signal. However, this is known in the art taught by Wells (lines 4-6 of abstract). It would have been obvious to one of ordinary skill in the art to provide the function of making sure that the individual pixels which make up the vector are dithered with best elements (lines 50-56 of column 3).

The Applicant argues: reference Alappat disclose a different type of jaggedness or aliasing in displaying a waveform. However, the claim does not recite any specific detail of the term aliasing and thus the limitation is met by Alappat. Furthermore, the Applicant argues reference Alappat does not disclose converting a high resolution image into a lower resolution image. However, this is known in the art taught by Poduska (lines 1-11 of abstract).

The Applicant argues: reference Wells does not disclose shaped signal which deals with

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coordinate values. However, the claim does not recite any specific detail on shape signal being dealing with coordinate values. Furthermore, while claim recites summing the dither signal with a dimensional component value, this is known in the art taught by Poduska (lines 61-67 of column 6 and lines 1-21 of column 7 and Fig. 6).

### *Conclusion*

9. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Wells et al. (US 5,164,717) disclose "Method and Apparatus for the Dithering of Antialiased Vectors".

Comins et al. (US 5,179,641) disclose "Rendering Shaded Areas with Boundary-Localized Pseudo-Random Noise".

10. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the mailing date of this final action.

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***Inquiry***

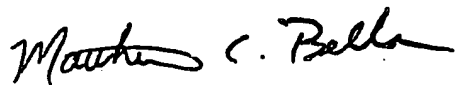
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Po-Wei (Dennis) Chen whose telephone number is (703) 305-8365. The examiner can normally be reached on 9am-5pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Matthew C Bella can be reached on (703) 308-6829. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 305-3900.

Po-Wei (Dennis) Chen  
Examiner  
Art Unit 2676

Po-Wei (Dennis) Chen  
December 15, 2003

  
MATTHEW C. BELLA  
SUPERVISORY PATENT EXAMINER  
TECHNOLOGY CENTER 2600